

IN THE SPECIFICATION:

Please replace the paragraph beginning at page 10, line 11, with the following rewritten paragraph:

Enclosure 204 is provided with at least three gas ports connecting with passageway 260: entry port 216, exhaust port 218, and exhaust port 220. System 200 further comprises two gas-permeable electrode banks 210, 212 (an anode bank and a cathode bank) spaced apart and insulated from one another. The electrode banks are separated from each other by the ionization chamber ~~202~~262c. Each bank is comprised of a series of parallel spaced electrodes. Bank 210 is comprised of electrodes 211a-c, and bank 212 is comprised of electrodes 213a-c. The electrodes may be formed of any suitable conductive and gas-permeable material. Each electrode within a bank of electrodes may be maintained at the same voltage. For example, electrodes 211a-c may be maintained at the same positive voltage, and electrodes 213a-c may be maintained at the same negative voltage.

Please replace the paragraph beginning at page 12, line 27, with the following rewritten paragraph:

Pumps 228, ~~230~~ 238 are connected to exhaust ports 218, 220, and may be operated to create suction in exhaust plenums 224, 226, respectively. Any suitable vacuum or suction pump may be used, depending on the intended mass flow rate through the system, the desired vacuum pressure in chamber 262c, and the electric field voltage. In a prototype embodiment, pumps 228, ~~230~~ 238 comprised 145 mm 2-stage tangential bypass discharge vacuum pumps from Ametek® Lamb Electric of Kent, Ohio.

Please replace the paragraph beginning at page 13, line 4, with the following rewritten paragraph:

The flow of gas into and out of system 200 may be controlled by an intake valve (not shown), exhaust valve (not shown), and/or by varying the speed of pumps 228, ~~230~~ 238. A gaseous mixture is drawn into the ionization chamber 262c as shown by arrow 236, because of suction provided by pumps 228 and ~~230~~ 238. Gas within the chamber 262c is ionized by the electric field between electrode banks 210, 212, and ions of opposite polarity tend to propagate in opposite directions, towards an oppositely-charged one of the electrode banks. A portion of the gas passes through electrode bank 210, and is discharged through exhaust port 218, as indicated by arrow ~~238~~ 230. The balance of gas flow passes through electrode bank 212 and is discharged through exhaust port 220, as indicated by arrow 240. Provided that chamber 102 is substantially sealed except for the gas ports, the inlet mass flow rate 236 will equal the sum of the exhaust flows ~~238~~ 230, 240.

Please replace the paragraph beginning at page 15, line 1, with the following rewritten paragraph:

Fig. 3 shows an alternative system 300 for gas separation. Like system 200, system 300 includes a generally tubular enclosure 304 housing a plurality of permeable electrodes 310a-f in a passageway 360, an entry port 316 and two exhaust ports ~~218~~ 318, ~~220~~ 320 disposed at opposite ends of the passageway. Electrodes 310a-f are disposed across passageway 360, dividing it into a plurality of sections each bounded on opposing ends by an electrode. Differences from system 200 include tapered exhaust ports 318, 320 to promote laminar flow, a voltage divider circuit 350, exhaust control valves 352, 354, and controller 356. It should be appreciated that system 300 exemplifies various new features and modifications to system 200, and it is not

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January 29, 2007
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necessary that all of these new features be used together at once. A system according to the invention may be constructed by selecting from these new features and modifications as desired.